

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
5001 Eisenhower Ave., Alexandria, VA 22333

DARCOM REGULATION
No. 385-24

13 April 1984

Safety

DEVELOPMENT OF ARMY RANGE SAFETY DATA

Supplementation of this regulation is prohibited unless prior approval is obtained from the proponent.

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1. Purpose. This regulation establishes policies, responsibilities, and procedures for developing surface danger zones and related range safety control guidance for inclusion in Army publications.

2. Scope. This regulation applies to--

a. Headquarters, US Army Materiel Development and Readiness Command (DARCOM); DARCOM major subordinate commands (including their subordinate installations and activities); program, project, and product managers (PMs); and separate installations and activities reporting directly to Headquarters, DARCOM.

b. Weapon systems, munitions, and explosive devices developed or procured by DARCOM for use during peacetime training, target practice, and tactical combat.

3. Objectives. The objectives of this regulation are as follows:

a. Assure that users of weapon systems, munitions, and explosive devices developed or procured by DARCOM are provided with suitable range safety data in order to enable them to conduct range operations in the safest possible manner.

b. Assure that range safety data are developed in a timely manner.

*This regulation supersedes AMCR 385-24, 11 April 1974.

4. Policy. a. The development of range safety data is to be considered an integral part of the materiel development and acquisition process and, therefore, will be accomplished concurrently with the development of a weapon system, munition, or explosive device.

b. Range safety requirements which must be followed by troops during training or combat will be clearly stated in appropriate technical manuals (TMs).

5. Responsibilities. a. Director, DARCOM Field Safety Activity (FSA) will--

(1) Act as the single Point of Contact for range safety within DARCOM.

(2) Establish policy for the development of Army range safety data.

(3) Provide technical support to Headquarters, US Army Training and Doctrine Command (HQ, TRADOC), ATTN: ATEN-S, in maintaining and updating the range safety data contained in ARs 385-62 and 385-63.

(4) Approve and transmit range safety data that are to be provided to TRADOC for inclusion in ARs 385-62 and 385-63.

b. Commanders of DARCOM major subordinate commands (MSCs), installations, and activities, and PMs responsible for the development or acquisition of weapon systems, munitions, and explosive devices will assure that--

(1) Range safety data for use during training and target practice, and safety requirements for use during combat are developed concurrently with the weapon systems, munitions, and explosive devices and are consistent with the range safety data contained in AR 385-62 or AR 385-63, whichever is applicable.

(2) Available range safety data are included in the safety assessment reports (SARs) for items that are to be submitted to the Commander, US Army Test and Evaluation Command (TECOM) for developmental testing. This will include appropriate contractor range safety data generated under SAR or other system safety contractual data item requirements. Similarly, available range safety data will be provided to test agencies prior to customer type tests if requested by the test agency.

(3) Firing tables and associated ballistic data required for range safety are developed and furnished to TECOM for use during developmental testing.

(4) When range firings with provisional or interim firing tables are to be conducted by test agencies other than those of TECOM, provide or arrange for the US Army Ballistic Research Laboratories to provide the ballistic data to the appropriate TECOM testing directorate for use by the test agencies in establishing range safety requirements.

(5) Test plans for developmental testing include test requirements to develop range safety data.

(6) Recommendations for final surface danger zones, with written procedures for the construction and use of the surface danger zone diagrams, are prepared in a form suitable for inclusion in either AR 385-62 or AR 385-63 (whichever is applicable) and are provided through the supporting safety office to the Director, US Army DARCOM Field Safety Activity, ATTN: DRXOS-SE, for review and approval and for forwarding to TRADOC. These recommendations are to be provided to DARCOM FSA within 60 days after the receipt of the Independent Evaluation Report from TECOM or the US Army Materiel Systems Analysis Activity (AMSAA). The following is a list of data required to evaluate and develop surface danger zones for a specific weapon system or ammunition item.

(a) Maximum ranges of projectile when fired at different combinations of elevations and charge weights.

(b) Maximum ordinate (summit) of the projectile when fired at various combinations of elevations and charge weights.

(c) Drift (for artillery firing in particular) caused by the spin of the projectile.

(d) Probable errors, both in range and deflection.

(e) Effects of variations in meteorological conditions (air density, wind speed and direction, and temperature) on range and deflection and on noise and blast levels.

(f) Impact locations or area of projectile components such as sabots and spacers that are discarded in flight and of carriers for dispensing systems in flight such as grenades, mines, and smoke cannister cargoes.

(g) Ricochet characteristics that may cause projectiles fired at low angles to travel beyond or laterally from the target.

(h) Factors that affect the stability and control of the launching system, such as positive controls to prevent elevation above a given angle, or jump and hop of the firing device.

(i) Projectile modifications that alter flight characteristics, such as spoiler plates attached to the projectile to reduce their range.

(j) Noise levels at crew and spectator positions that could cause damage to hearing (impulse noise data used to define the 140 decibel noise contour prescribed in MIL STD 1474B).

(k) Maximum fragmentation range, airburst or groundburst, for high explosive projectiles.

(l) Rearward debris.

(m) Specific information on laser hazards (rangefinders, designators, illuminators), such as eye safe zones and optical density requirements for protective goggles based on the studies conducted by the US Army Environmental Hygiene Agency.

(n) Downwind hazard area for riot control, smoke, or chemical agents.

(o) Information on launch area clearance zone, launch abort zone, rocket motor stage impact zone, destruct package data for surface-to-surface and surface-to-air or ballistic missiles.

(p) Data to provide thickness of material for positive protection against individual bullet impact from small arms and machineguns.

(7) Cross-references to ARs 385-62 and 385-63 pertaining to range safety requirements for training purposes are included in appropriate TMs.

(8) Development contracts include Data Item DI-H-1327A, Surface Danger Area Data.

(9) Information on range safety development is addressed in the safety and health data sheet prior to in-process reviews (IPRs).

c. Commander, TECOM, will assure that--

(1) For systems for which TECOM is the independent evaluating agency:

(a) Range safety data provided by the developer are thoroughly evaluated during developmental testing to determine the adequacy for troop use.

(b) When range safety data are not available for evaluation, the test plan for developmental testing must require the necessary tests to be conducted to develop the range safety data.

(c) Results of the tests and evaluation of range safety are to be provided to the developing agency as part of the Development Test II (DT II) Test Report.

(d) Range safety data are provided to the operational test agency as part of the safety release prior to operational testing.

(e) An evaluation of the adequacy of the developing agency's proposed surface danger zones or recommendations for range safety data is included in applicable test reports and independent evaluation reports.

(f) One copy of each test report, independent evaluation report, and technical report in which range safety is addressed, is furnished to the Director, US Army DARCOM Field Safety Activity, ATTN: DRXOS-SE.

(2) Range safety input is provided to AMSAA for systems for which AMSAA serves as the independent evaluating agency.

d. Director, AMSAA, will assure for systems for which AMSAA serves as the independent evaluating agency, that--

(1) TECOM is provided all available information pertinent to the testing of range safety.

(2) TECOM is afforded an opportunity to comment on the safety portion of test design plans and independent evaluation plans.

(3) Independent evaluation reports include an evaluation of the adequacy of the developing agency's proposed surface danger zones or recommendations for range safety data.

(4) One copy of each independent evaluation report in which range safety is addressed, is furnished to the Director, US Army DARCOM Field Safety Activity, ATTN: DRXOS-SE.

6. References. a. DOD 5000.19-L, Vol II.

b. ARs 210-21; 385-16- with DARCOM Supplement 1; 385-62; and 385-63.

c. AMCR 310-9.

The proponent of this regulation is the US Army DARCOM Field Safety Activity. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Director, US Army DARCOM Field Safety Activity, ATTN: DRXOS-SE, Charlestown, IN 47111.

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